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goods on hand amounted to \$31.67, and the amount of sales for the month was \$102.97; what was the balance of acct?

26. Proposed by E. S. LOOMIS, A. M., Ph. D., Professor of Mathematics, Baldwin University, Berea, Ohio.

You say, "While treating of the pronunciation of those who minister in public, two other words occur to me which are commonly mangled by our clergy. One of *these* (A) is 'covetous,' and its substantive 'covetiousness'. I hope some who read *these lines* will be induced to leave off pronouncing *them* (B) 'covetius' and 'coviousness'. I can assure *them* (C) that when *they* (D) do thus call *them* (E) one at least of *their* (F) hearers has his appreciation of *their* (G) teaching disturbed."

The problem now is, in how many ways can this above quotation be (read or) understood, by supposing various antecedents to the pronouns as per table.

The pronoun	Nouns to which they apply.	No. of nouns.
(A) these	Words or clergy.	2
(B) them	Words, clergy, readers, or lines.	4
(C) them	Words, clergy, readers, or lines.	4
(D) they	Words, clergy, readers, or lines.	4
(E) them	Words, clergy, readers, or lines.	4
(F) their	Words, clergy, readers, or lines.	4
(G) their	Words, clergy, readers, lines or hearers.	5

Solutions to these problems should be received on or before August 1st.

## ALGEBRA.

Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

### SOLUTIONS TO PROBLEMS.

14. Proposed by SYLVESTER ROBINS, North Branch Depot, New Jersey.

In copying the following example, the class lost the coefficient of  $x$  in the equation:

$$\sqrt{x} + \sqrt[3]{y} = x \dots (1),$$

$$\sqrt{x^3 + \sqrt[3]{y}^2} = (m)x \dots (2).$$

and set themselves to finding values for  $m$ , which would allow rational values to  $x$  and  $y$ .

Solution by Hon. JOSIAH H. DRUMMOND, LL. D., Portland, Maine.

Transposing (1) and squaring, we have

$$\sqrt[3]{y}^2 = x^2 + x - 2x\sqrt{x} = (\text{from (2)}) mx - x\sqrt{x}, \text{ or reducing } x - \sqrt{x} = m - 1 \dots (3).$$

It follows from (1) that if  $\sqrt{x}$  is rational,  $y$  will be rational also.

$$\text{From (3)} \quad \sqrt{x} = \frac{1 \pm \sqrt{4m-3}}{2}. \quad \text{Let } 4m-3 = p^2, \text{ then } m = \frac{p^2+3}{4}, \text{ and}$$

$\sqrt{x} = \frac{p+1}{2}$ , in which  $p$  may be any number. If  $p=1$ ,  $m=1$ ,  $\sqrt{x}=1$ ,  $x=1$ , and  $y=0$ . Take  $p=3$ ,  $m=3$ ,  $\sqrt{x}=2$ ,  $x=4$  and  $y=8$ . To obtain integral results, take  $p=2q+1$ ; then  $m=q^2+q+1$ ,  $\sqrt{x}=q+1$ ,  $x=(q+1)^2$  and  $y=[(q+1)^2 - (q+1)]^3$ , in which  $q$  may be any integral number.

Also solved by A. H. BELL, H. W. DRAUGHON, R. H. YOUNG, G. B. M. ZERR, and the PROPOSER.